

delrin 1"

Work Order ID 138635

138635

Page 1

Item ID: D3183-9

Revision ID:

Item Name: Cap

Start Date: 11/5/2015 Start Qty: 25.00

Required Date: 11/5/2015 Req'd Qty: 25.00

Reference:

Accept

N900040100

Setup Start *NS1*

Stop *NS2*

Cust Item ID:

Customer:

Approvals:

Process Plan: MLS

Date:

Tooling:

Date:

Run Start *NR1*

QC:

Date:

NOV 05 2015

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D3183

Rev C1

100

0.00

100

Hardinge CNC LATHE SMALL

Hardinge

Memo

0.02

Hardinge CNC Lathe Small

Turn D3183-9 Cap as per Folio FA388Debur

52 ϕ JFC 2015-11-19

110

QC2- Inspect parts off machine FAI/FAIB

0.00

110

QC

Memo

0.00

Quality Control

52 ϕ JFC 2015-11-19

120

QC8- Inspect parts - second check

0.00

120

QC

Memo

0.01

Quality Control

52 ϕ DAS 40 9-89

15/11/19

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____							
Misidentified	☐	Past Due	☐								

Work Order ID 138635***138635***

Page 2

Thursday, November 05, 2015 12:32:48 PM

Item ID: D3183-9

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Cap

Start Date: 11/5/2015 Start Qty: 25.00

25

Cust Item ID:

Required Date: 11/5/2015 Req'd Qty: 25.00

25

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Identify as per dwg & Stock Location: <u>Store</u>	0.00							
130									
Packaging	Memo	0.00							
Packaging									
140	QC21 - Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.04							
Quality Control									

MLJ 15-11-20

MLJ 15-11-23

MLJ 15-11-23

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____ _____			
Misidentified	☐	Past Due	☐				

Picklist Print

Thursday, November 05, 2015 12:32:48 PM

Page 1

Work Order ID: 138635

138635

Parent Item: D3183-9

D3183-9

Parent Item Name: Cap

Start Date: 11/5/2015

Required Date: 11/5/2015

Start Qty: 25.00

Required Qty: 25.00

Comments: IPP A 06.05.03 New issue KJ

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MDELRINR1.000		Purchased		No		100	f	35.6533	0.0333	0.876316			

MDELRINR1 000

Delrin Round Bar 1" color: black

Location

Loc Qty

Loc Code

MAT039

35.6533

m132884

14.9513

m132947

20.702

1,75 fl JFC 2015-11-19

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

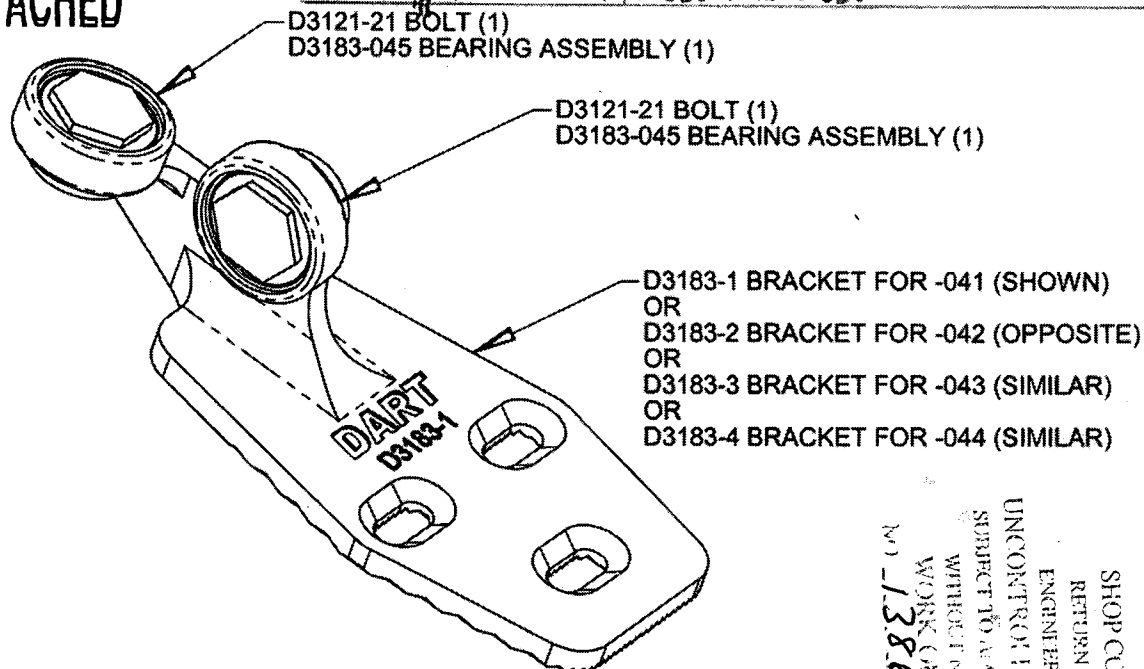
Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER :			
Misidentified	☐	Past Due	☐				



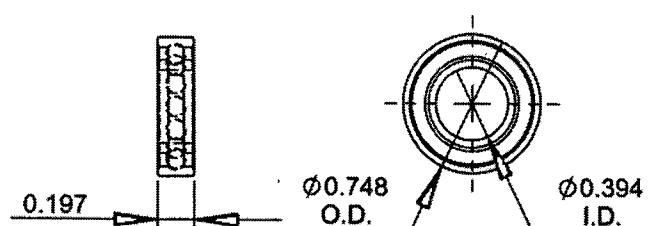
DESIGN #	DRAWN BY P	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D3183	REV. C SHEET 1 OF 4
DATE 04.02.17		TITLE BRACKET ASSEMBLY	SCALE 1:1
A	03.01.24	NEW ISSUE	
B	03.06.17	REMOVE BEARING; 1.012 WS 0.882	
C	04.02.17	ADD -045/-9; 0.182 WAS 0.431	
C1	04.11.09	0.830 WAS 0.850	

RELEASED
04.03.01
DEO ATTACHED



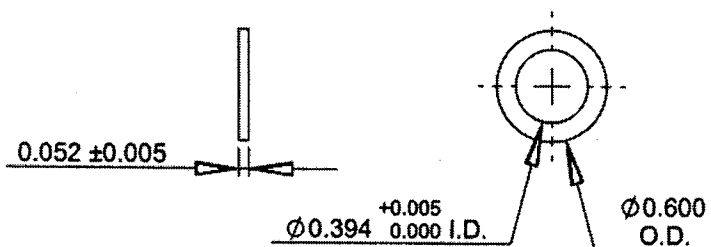
D3183-041 BRACKET ASSEMBLY (SHOWN)
D3183-042 BRACKET ASSEMBLY (OPPOSITE)
D3183-043 BRACKET ASSEMBLY (SIMILAR)
D3183-044 BRACKET ASSEMBLY (SIMILAR)

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO A FURTHER
WORK ORDER
WITHOUT NOTICE
15-1-05
M-138635 M/S



D3183-5 BEARING:
SPECIFICATION CONTROL DRAWING

- 1) SINGLE ROW, DEEP GROOVE, CONRAD TYPE, SHIELDED
- 2) POSSIBLE SUPPLIER: NSK P/N 6800ZZ
- 3) ALL DIMENSIONS ARE IN INCHES



D3183-7 WASHER

- 1) MATERIAL: AISI 303 ROUND BAR (M303R) ANNEALED
- 2) BREAK ALL SHARP EDGES 0.005 TO 0.010
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) ALL DIMENSIONS ARE IN INCHES

COPYRIGHT © 2003 BY DART AEROSPACE LTD.

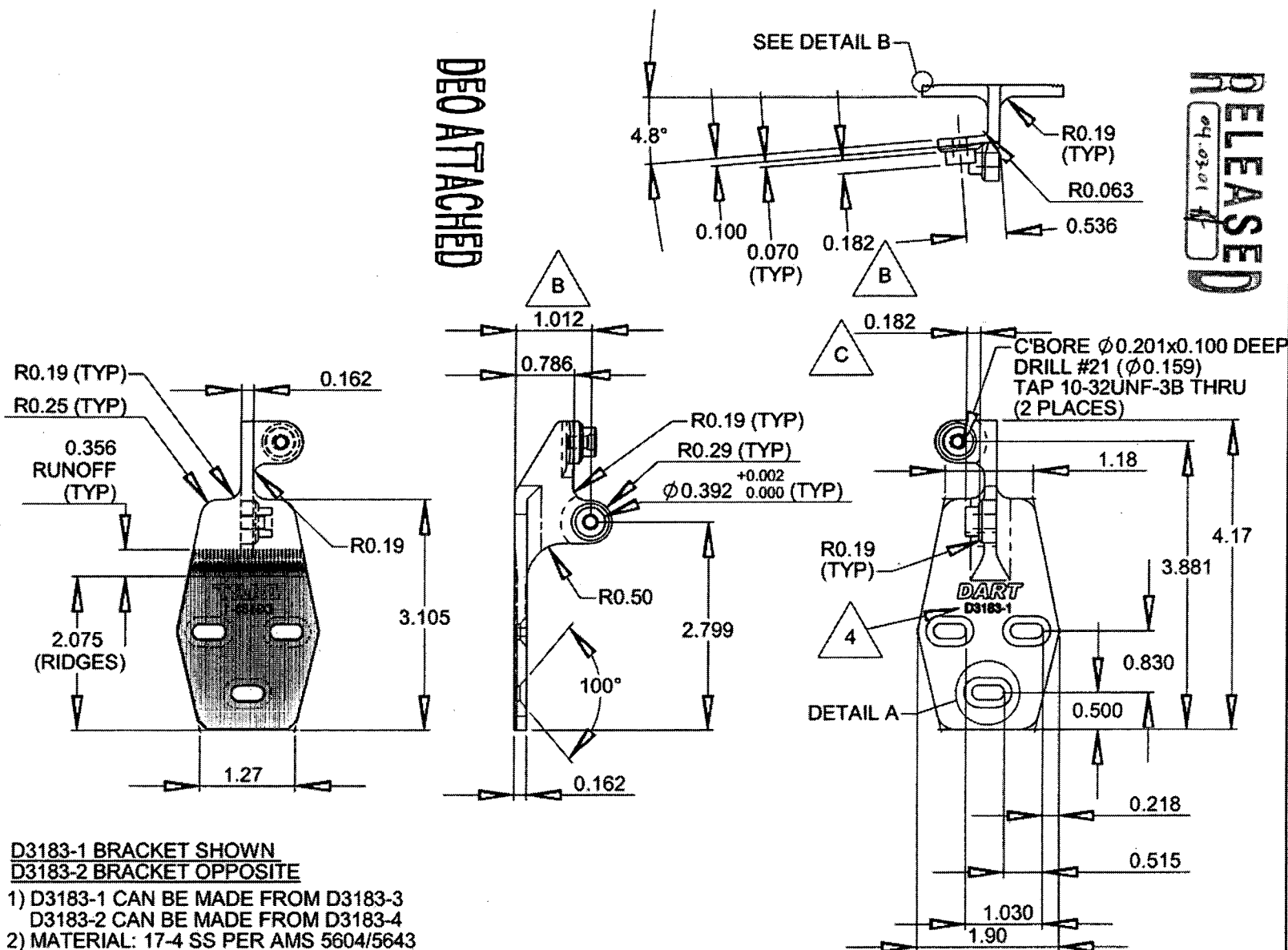
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



DESIGN	DRAWN BY	DART AEROSPACE LTD
CHECKED	APPROVED	HAWKESBURY, ONTARIO, CANADA
DATE	DRAWING NO.	REV. C
04.02.17	D3183	SHEET 2 OF 4
TITLE	BRACKET ASSEMBLY	SCALE
		1:2

RELEASED
04.03.01

DEO ATTACHED



D3183-1 BRACKET SHOWN
D3183-2 BRACKET OPPOSITE

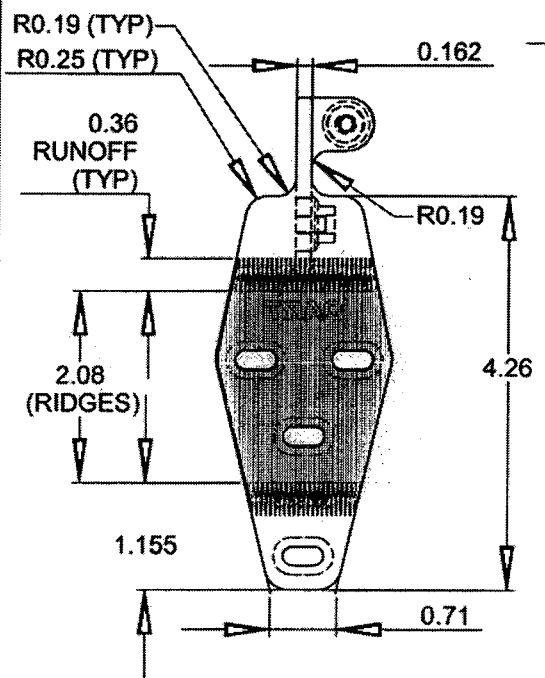
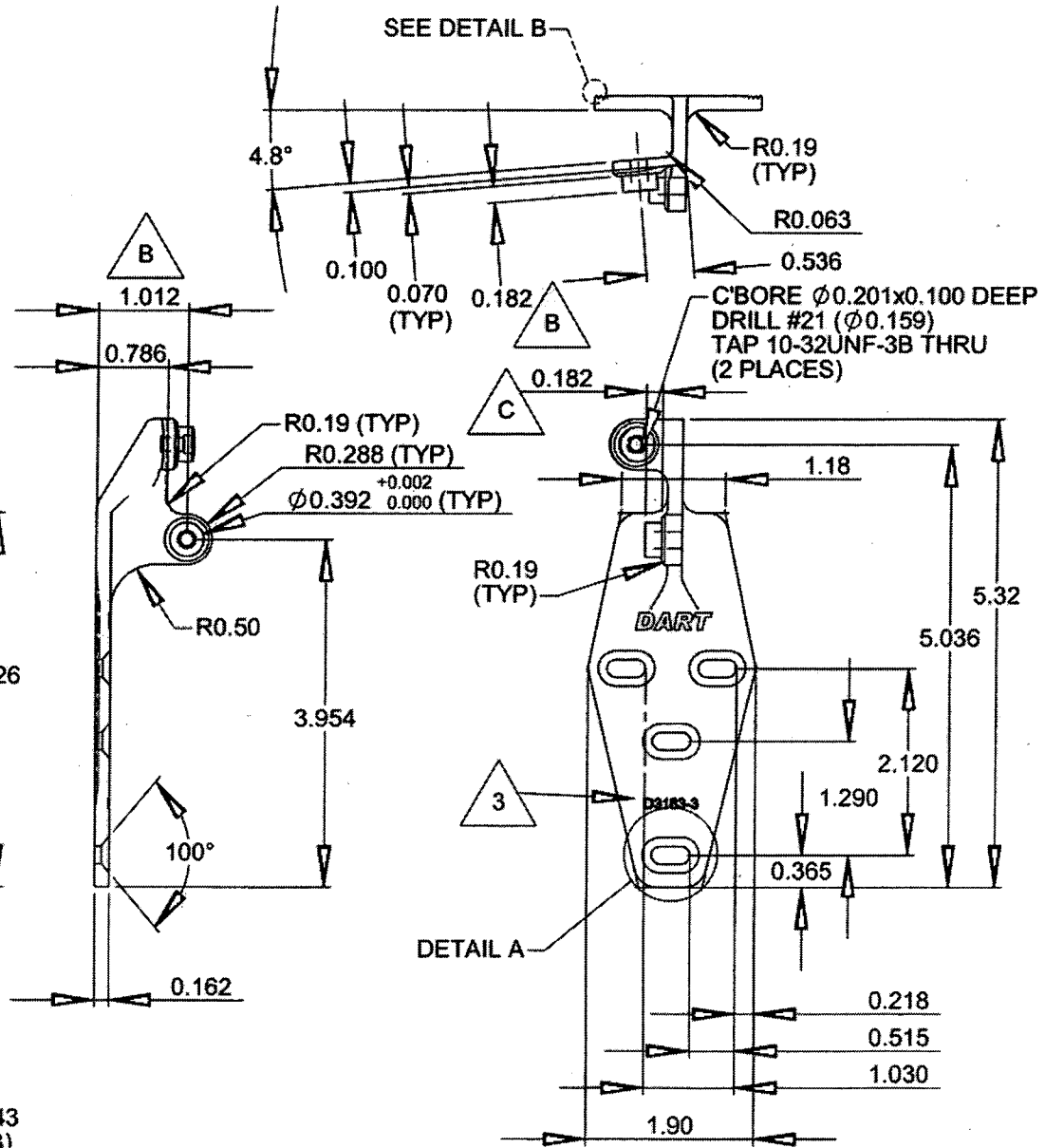
- 1) D3183-1 CAN BE MADE FROM D3183-3
D3183-2 CAN BE MADE FROM D3183-4
- 2) MATERIAL: 17-4 SS PER AMS 5604/5643
(REF DART SPEC. M17-4-B)
MIN ULTIMATE STRENGTH = 150 ksi
MIN YIELD STRENGTH = 100 ksi
- 3) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 4) ENGRAVE DART P/N & LOGO AS SHOWN
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6) ALL DIMENSIONS ARE IN INCHES

COPYRIGHT © 2003 BY DART AEROSPACE LTD.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



DESIGN	DRAWN BY	DART AEROSPACE LTD
CHECKED	APPROVED	HAWKESBURY, ONTARIO, CANADA
DATE	DRAWING NO.	REV. C
04.02.17	D3183	SHEET 3 OF 4
	TITLE	SCALE
	BRACKET ASSEMBLY	1:2



D3183-3 BRACKET SHOWN
(REPLACES BELL P/N 412-030-304-105)
D3183-4 BRACKET OPPOSITE
(REPLACES BELL P/N 412-030-304-106)

- 1) MATERIAL: 17-4 SS PER AMS 5604/5643
(REF DART SPEC. M17-4-B)
MIN ULTIMATE STRENGTH = 150 ksi
MIN YIELD STRENGTH = 100 ksi
- 2) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 3) ENGRAVE DART P/N & LOGO AS SHOWN
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 5) ALL DIMENSIONS ARE IN INCHES

DEO ATTACHED

RELEASED

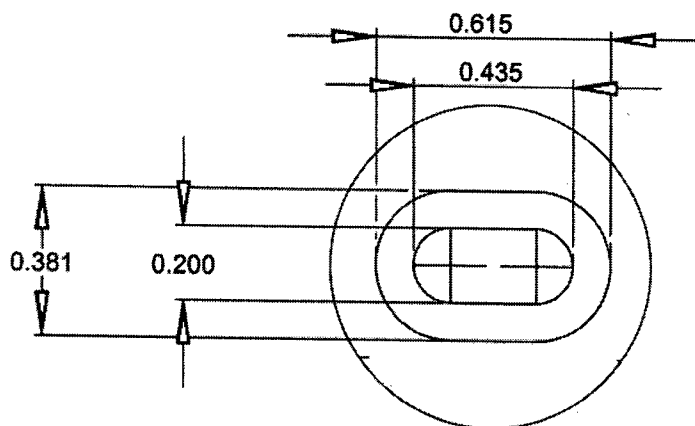
04.03.01

COPYRIGHT © 2003 BY DART AEROSPACE LTD.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



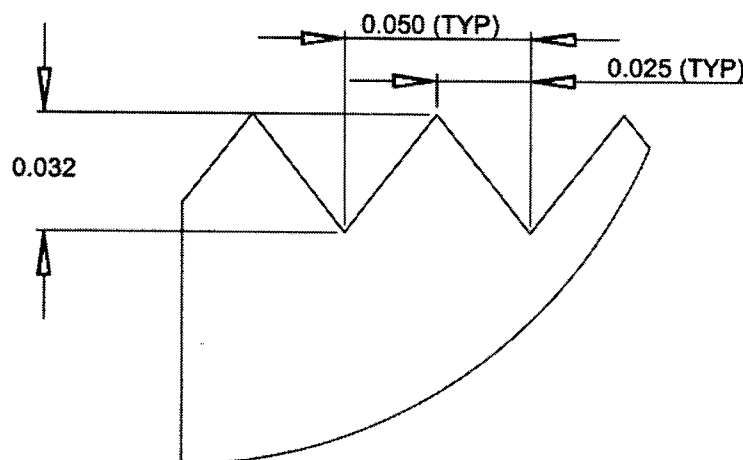
DESIGN #	DRAWN BY UP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D3183	REV. C SHEET 4 OF 4
DATE 04.02.17		TITLE BRACKET ASSEMBLY	SCALE 1:1



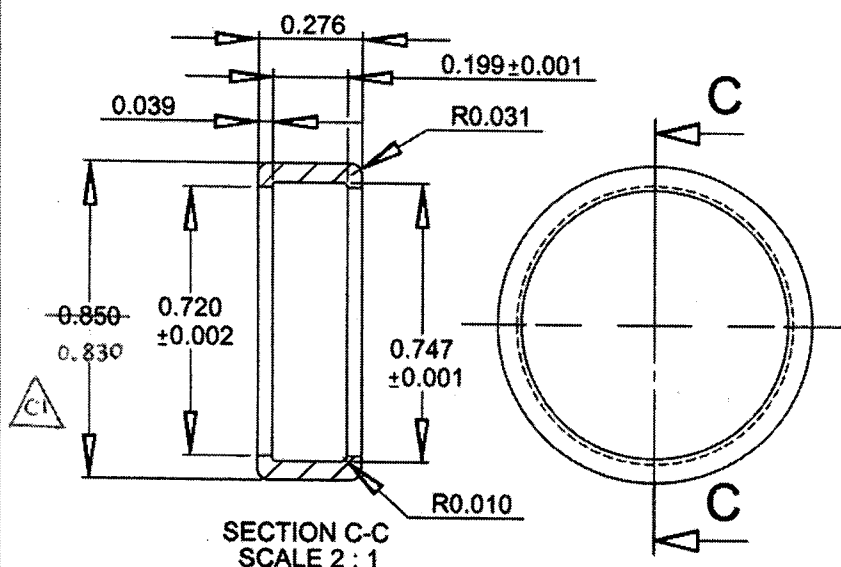
DETAIL A (2 : 1)

RELEASED
04.03.01

DEO ATTACHED



DETAIL B (20 : 1)



D3183-9 CAP

- 1) MATERIAL: DELRIN ROD, Ø1.00
(REF DART SPEC. M-DELRIN-R1.00)
- 2) TOLERANCES ARE PER DART QSI 018
UNLESS OTHERWISE NOTED
- 3) ALL DIMENSIONS ARE IN INCHES

D3183-045 BEARING ASSEMBLY

- 1) ASSEMBLE D3183-5 BEARING AND
D3183-9 CAP

COPYRIGHT © 2003 BY DART AEROSPACE LTD.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

